Appl. No. 09/943,982
Amdt. sent November 16, 2005
Reply to Office Action of June 17, 2005

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1   1.   (Currently amended): A backup processing method for backing up data to
2   be used by a data-processing computer system, the method comprising the steps of:
3   selecting resources in a usable state from a plurality of resources necessary for
4   backing up data, the data to be used by the data-processing computer system and stored in a
5   storage system thereof;
6   selecting switches in a usable state from a plurality of switches necessary for
7   forming routes among the selected resources;
8   determining which of the selected resources and selected routes are secure;
9   securing one group of the selected resources and selected routes as a first path
10   between the storage system and a first destination for backup and another group of the selected
11   resources and selected routes as a second path between the storage system and a second
12   destination different from the first destination;
13   executing backup processing by using the first path and a backup instruction
14   command set having a plurality of backup commands, each backup command backing up a
15   different portion of the data, every portion of the data having a corresponding backup command,
16   the backup processing including executing one or more of the backup commands;
17   detecting if a problem occurs in the first path based on a result of execution of one
18   of the backup commands in the backup instruction command set;
19   changing from the first path to the second path if a problem is detected; and
20   continuing execution of the backup processing by using the second path and
21   executing backup commands in the backup instruction command sets that have not yet been
22   executed.

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1   2.   (Previously presented): A backup processing method according to claim

2   1, wherein backup processing is executed by using the first or the second path, and when the

3   backup processing has been fully executed by one or both of the paths, regarding the backup

4   processing as successful.

        3-5.   (Canceled)

1   6.   (Original): A backup processing method according to claim 2, further

2   including a step of storing information relating to the backup processing of the backed-up data.

1   7.   (Original): A backup processing method according to claim 2, further

2   including a step of storing information relating to whether the backup processing of the backed-

3   up data was successfully executed.

1   8.   (Original): A backup processing method according to claim 7, wherein

2   data stored relating to the successful execution of the backup processing is used to determine if

3   the data can be restored.

        9-15. (Canceled)

1   16.   (Previously presented): A backup processing method according to claim 1

2   further comprising terminating execution of the backup processing if the second path is not

3   secured.

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1   17.   (Currently amended): A computer managing a system which includes a

2 plurality of resources, comprising:

3   a processing unit; and

4   a network interface connectable to the plurality of resources via a network,

5   wherein the processing unit is operable to:

6   select resources in a usable state from the plurality of resources necessary

7 for backing up data stored in a storage system;

8   determine which of the selected resources are secure;

9   secure a first group ~~of~~ from among the selected resources ~~as~~ to define a

10 first path between the storage system and a first storage resource; ~~and~~

11   secure a second group ~~of~~ from among the selected resources ~~as~~ to define a

12 second path between the storage system and a second storage resource different from the

13 first storage resource ~~for backup~~;

14   initiate first backup processing via the first path by issuing a backup

15 instruction command set via the network interface to the first group of resources, the

16 backup instruction command set having a plurality of backup commands, each backup

17 command effective to backup a portion of the data stored in the storage system, wherein

18 one or more of the backup commands are executed to backup one or more portions of the

19 data via the first path;

20   detect if a problem occurs in the first path based on a result of execution of

21 one of the backup commands;

22   initiate a change from the first path to the second path if the problem is

23 detected; and

24   initiate second backup processing via the second path by issuing a

25 remaining portion of the backup instruction command set via the network interface to the

26 second group of resources, the remaining portion of the backup instruction command set

27 including those backup commands which had not been previously executed.

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1   18.   (Previously presented): A computer according to claim 17, wherein the

2 processing unit terminates execution of the backup processing if the second path is not secured.

1   19.   (Previously presented): A computer according to claim 18, wherein

2 backup processing is executed by using the first path or the second path, and if the backup

3 processing has completely executed using either or both of the first path or the second path, then

4 regarding the backup processing as successful.

1   20.   (Previously presented): A computer according to claim 19 further

2 comprising a memory,

3   wherein the processing unit stores information relating to whether the backup

4 processing of the backed-up data was successfully executed,

5   wherein the processing unit indicates to execute data restore based on the

6   information.

1   21.   (Currently amended): A computer according to claim 17 further

2 comprising a memory,

3   wherein the data that is backed up is referred to as backed-up data and can be

4 stored in [[a]] **the** first storage resource in the first path or in [[a]] **the** second storage resource in

5 the second path,

6   wherein the processing unit stores backup information relating to the backup

7 processing of the backed-up data into the memory, the backup information indicating which

8 portions of the backed-up data are stored in the first storage resource and which portions of the

9 backed-up data are stored in the second storage resource,

10   wherein the processing unit initiates restoring of the backed-up data based on the

11 backup information, including performing steps of:

12   accessing the backup information in connection with a first portion of the

13   backed-up data and determining whether the first portion is stored on the first storage

14   resource or on the second storage resource;

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15   accessing either the first storage resource or on the second storage

16   resource to obtain the first portion; and

17   repeating the above steps for additional portions of the backed-up data, thereby

18   restoring the data from the backed-up data.

1   22.   (Currently amended): A system comprising:

2   a storage system;

3   a plurality of library systems;

4   a plurality of copy devices;

5   a plurality of switches which are connectable among the storage system, the

6   plurality of library systems and the plurality of copy devices; and

7   a management computer connectable to the plurality of switches, the storage

8   system, the plurality of library systems and the plurality of copy devices via a network,

9   wherein the management computer is operative to:

10   select library systems in a usable state from the plurality of library systems

11   necessary for backing up data stored in the storage system;

12   select switches in a usable state from the plurality of switches necessary

13   for forming routes from the storage system to the selected library systems, thereby

14   securing a first group of selected library systems and selected switches as a first route[[s]]

15   for backup and securing a second group of selected library systems and selected switches

16   as a second route;

17   select a first copy device in a usable state from the plurality of copy

18   devices for the first route[[s]] and a second copy device in a usable state from the

19   plurality of copy devices for the second route[[s]]; and

20   initiate execution backup processing via the first route[[s]] by issuing

21   backup instruction command set including a plurality of backup commands, each backup

22   command indicating to transfer part of the data stored in the storage system to the first

23   copy device or to the second copy device ~~the copy device, when the first and second~~

24   ~~routes are secured,~~

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25   wherein the first copy device sends portions of data from the storage system to a

26   first library system included in the first route in accordance with one or more of the backup

27   commands, and notifies the management computer if an error in the first route is detected,

28   wherein the management computer initiates execution backup processing via the

29   second route by issuing a remaining portion of the backup instruction command set to the second

30   copy device if the management computer receives an error notification from the first copy

31   device,

32   wherein the second copy device sends data from the storage system to a second

33   library system included in the second route in accordance with the remaining portion of the

34   backup instruction command set.

1   23.   (Previously presented): A system according to claim 22, wherein the

2   management computer terminates execution of the backup processing if the second route is not

3   secured.

1   24.   (Previously presented): A system according to claim 23, wherein backup

2   processing is executed by using the first route or the second route, and when the backup

3   processing has been successfully executed by at least one route, regarding the backup processing

4   as successful.

1   25.   (Previously presented): A system according to claim 24,

2   wherein the management computer stores information relating to whether the

3   backup processing of the backed-up data was successfully executed,

4   wherein the management computer selects the first route based on the

5   information, indicates the copy device to execute data restore from a library system included in

6   the first route to the storage system via the first route.